

Exam 2: Choosing a Better History

36-402, Advanced Data Analysis

Due at 11:59 pm on Monday, 15 April 2013

Instructions

Please read the problem background carefully, before beginning the data analysis. Adequate data analysis here *will* require you to go beyond what you know from linear regression, and use methods from this class. You will be graded not just on the technical correctness of your results, but also on the soundness of the reasoning you use to get to the results, and the clarity with which you communicate both your reasons and your results.

A data set (CSV format) will be sent to your Andrew e-mail address. Each data set is slightly different. Work only with your own. If you have not received a data set, or cannot open it, contact Prof. Shalizi by 5 pm on Wednesday 27 February.

Turn in a single PDF file including your written report, all figures, and supporting R code. The text (excluding figures and R) should not exceed 10 pages. Make sure the name of the PDF file includes your Andrew ID.

You can use your notes, the textbooks, and anything you find in the library or online, if it is properly acknowledged. However, **all your work must be your own**. You cannot work with classmates, friends, a tutor, or anyone else. If you are unclear about what is allowed and what is not, please check the university policy on cheating and plagiarism (<http://www.cmu.edu/policies/documents/Cheating.html>), or ask the professor.

Please include the following text in your write-up:

I, YOUR NAME, have completed this examination honestly, without giving prohibited assistance to anyone, or receiving it from anyone.

If, for reasons of conscience, you are unable to make such an affirmation, let the professor know at once, to arrange for an oral mid-term.

Background

All over the world, people invoke historical episodes and experiences as they try to make sense of political events, and to try to bring people around to their point of view on political matters. Inevitably, these uses of history are highly selective (nobody can pay attention to everything), and often highly “motivated” (people pay more attention to examples that reinforce what they already like), but they can also be consequential (people sometimes change their minds because of historical examples). Cultural anthropologists are interested in studying how popular historical memory interacts with widely-shared values, and how *differences* in the way the past is perceived, within a single population, relate to differences in values.

The data for this exam come from a survey of attitudes towards historical episodes, political values, and human rights, conducted in a small formerly-Communist country by anthropologists, studying how the citizens of the new republic made sense of the transition to capitalism and democracy¹. The survey was conducted in two waves, in 1998 and 2003; the subjects surveyed were different each time, as was the sample size.

Data

The surveys were conducted as interviews, with four sets of variables extracted from recordings of the interviews. One set are demographic variables about the survey subjects (Table 4). The other three variables all concerned whether the subjects *mentioned* certain topics or ideas, divided into attitudes about the past (Table 1), general political values (Table 2), and attitudes specifically about human rights (Table 3).

The scientists who conducted the survey are interested in how the distributions of all three sets of variables have changed between 1998 and 2003. They are also interested in testing the idea that general values (variables in Table 2) “mediate between” attitudes towards the past (Table 1) and attitudes on human rights (Table 3). In particular, they want to know if the changes in attitudes about human rights between 1998 and 2003 can be accounted for by changes in attitudes about historical episodes, while the *relationships* between attitudes towards the past and values, and between values and human rights, did not change.

Because the same subjects were not re-surveyed in both waves, the demographics of the two samples are different, and it is also possible that the differences in attitudes between the two waves (if any) can be explained by changing demographics. (E.g., perhaps young uneducated male members of the majority ethnic group all have pretty similar attitudes, and there were more in the 2003 sample.)

¹The investigators have kindly given permission for the data to be used in this class, but I am disguising some identifying details since it is not yet published.

<code>postsocialist</code>	Post-socialist years
<code>intl.stds</code>	International standards of democracy
<code>socialist</code>	Socialist era
<code>monarchy</code>	Monarchy (through early 20th century)
<code>feudal</code>	Feudal era

Table 1: Variables recording mentions of historical eras; coded 0 if not mentioned, 1 if mentioned.

<code>freedom.oppression</code>	Freedom from oppression
<code>personal.dignity</code>	Personal dignity
<code>selfdetermination</code>	National self-determination
<code>national.dignity</code>	National dignity and acceptance in the international community

Table 2: Variables mentioning political values; coded 0 if not mentioned, 1 if mentioned

<code>hr.personal.dignity</code>	Human rights bring personal dignity
<code>hr.equality</code>	HR bring equality
<code>hr.political.freedom</code>	HR bring political freedom
<code>hr.participation</code>	HR bring citizen participation in government
<code>hr.econ.freedom</code>	HR bring economic freedoms
<code>hr.socioeconomics</code>	HR brings socioeconomic rights
<code>hr.selfdetermination</code>	HR brings self-determination
<code>hr.natl.respect</code>	HR brings respect for the nation
<code>hr.violated</code>	HR are violated or cause problems
<code>hr.support</code>	Government should support HR
<code>hr.democracy</code>	HR are linked to democracy
<code>hr.mentioned</code>	HR mentioned in any way

Table 3: Variables recording attitudes towards human rights; coded 0 if not mentioned, 1 if mentioned

location	0 if provinces, 1 if national capital region
gender	0 female, 1 male
residence	0 rural, 1 urban
age	1, 17–26 2, 27–39 3, 40–54 4, 55+
education	0, < high school 1, secondary school 2, technical college 3, university+
occupation	0, unemployed 1, student (working age) 2, pensioner 3 government worker 4, NGO worker 5, private sector 6, farmer or herder
ethnicity	0, minority A 1, minority B 2, other minorities 3, majority 4, NA

Table 4: Demographic variables and their codes. Note that **age** and **education** are ordinal variables, but **occupation** and **ethnicity** are just categorical.

Tasks and Questions

You are to write a report assessing whether changes in attitudes towards human rights are better explained by changing attitudes towards the past, or changing demographics.

Your report should have the following sections: an introduction, laying out the questions being investigated and the approach taken; a description of the data; detailed analyses; and conclusions. The conclusions should use the outcomes of your data analyses to answer the questions about the world (not about models) set out in the introduction.

Your report should deal with *at least* the following specific points:

1. Are the relationships between attitudes towards the past and general values the same in the two waves?
2. Are the relationships between general values and attitudes towards human rights the same in the two waves?
3. Are human-rights attitudes and historical attitudes conditionally independent, given general political values?
4. Are the relationships between demographic variables and attitudes towards human rights the same in the two waves?
5. Are the changes in attitudes towards human rights best explained by changing demographics, by changing political values, or by changing historical attitudes? (You need to explain how you can use the data to distinguish between these possibilities.)
6. How missing values were handled, and why;
7. Appropriate quantifications of uncertainty for all estimates and hypothesis tests.

Adequately dealing with these points may, of course, lead to others.